Site Review And Update

KOPPERS COMPANY, INC. (TEXARKANA PLANT)

TEXARKANA, BOWIE COUNTY, TEXAS

CERCLIS NO. TXD980623904

SEPTEMBER 14, 1992

REVISED

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U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Agency for Toxic Substances and Disease Registry
Division of Health Assessment and Consultation
Atlanta, Georgia 30333

Site Review and Update: A Note of Explanation

The purpose of the Site Review and Update is to discuss the current status of a hazardous waste site and to identify future ATSDR activities planned for the site. The SRU is generally reserved to update activities for those sites for which public health assessments have been previously prepared (it is not intended to be an addendum to a public health assessment). The SRU, in conjunction with the ATSDR Site Ranking Scheme, will be used to determine relative priorities for future ATSDR public health actions.

REVISED SITE REVIEW AND UPDATE

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Prepared by the

Texas Department of Health
Under Cooperative Agreement with the
Agency for Toxic Substances and Disease Registry

SUMMARY OF BACKGROUND AND HISTORY

Site History

The 62-acre Koppers Company, Inc. site, a former wood treatment facility, is within the city limits of Texarkana, Bowie County, Texas. The site is in northeastern Texas approximately one mile from the Texas-Arkansas state line. Bordering the site to the north is the Texas and Pacific Railroad, to the southwest is Wagner Creek, to the northwest is an unnamed tributary, to the south is Jameson Street, and to the southeast are a drainage ditch and gravel pits. The site is in the 100-year flood plain and currently consists of a church, a residential area (Carver Terrace Subdivision) on the northern portion of the site, and a former sand and gravel operation (Kennedy Sand and Gravel) on the southern portion of the site. There are residential areas adjacent to the site on the east and across a railroad track to the north.

From 1910 to 1961, this site was operated as a creosote wood treatment facility. Operations included preservation, drying, and storage of treated wood. Chemical storage tanks and a waste water lagoon were on site. Chemicals used to treat wood included pentachlorophenol (PCP), creosote, and metallic salts. In 1964, Carver Terrace, Inc., developed a residential area on the northern 33 1/2 acres of the site. The southern half of the site, with the exception of a half-acre tract belonging to the Mount Zion Missionary Baptist Church, was sold to the Kennedy Sand and Gravel Company which operated from the late 1970's until 1984.

In 1981 the U.S. Environmental Protection Agency (EPA) began an initial investigation of the site; it was placed on the National Priorities List (NPL) in 1984 (TDH, 1992). PAHs were detected in surface and subsurface soil as well as in groundwater from the southern portion of the site (ERT, 1988). ATSDR concluded that possible exposure could occur through ingestion, inhalation, and dermal absorption of contaminated soils, as well as ingestion and dermal absorption of contaminated groundwater and sediment. The EPA had a soil/sod protective barrier placed on several residential lots in the Carver Terrace Subdivision during 1985 and 1986. In 1988 a final remedial investigation report and the feasibility study report were issued. Methods selected for remediation of the site include mechanical soil washing, oil/water separation, and either carbon adsorption or fluidized carbon bed treatment of affected groundwater. The first Record of Decision (ROD) was signed on September 23, 1988, and an amended ROD was signed March 4, 1992.

The amended ROD (ROD, 1992), 1) includes provisions to buy out the Carver Terrace subdivision and relocate affected residents,

2) discusses the destruction and disposal of the homes and debris to an appropriate facility, on-site excavation and treatment of contaminated soils to 100 parts per million (ppm) carcinogenic polycyclic aromatic hydrocarbons (PAHs), and replacement of excavated areas with clean fill; and 3) includes remediation of contaminated groundwater and fencing the remediated area to allow it to return to its natural state.

It also states that the Koppers NPL site must be restricted from residential use. The site will be re-evaluated every five years.

Previous ATSDR Involvement

April 10, 1989, the Agency for Toxic Substances and Disease Registry (ATSDR) released a Health Assessment for the Koppers Company, Inc., National Priorities List (NPL) Site.

Based on citizen concerns, the health assessment was reviewed by members of Congress and the proposed remedial action was amended to include a buyout of on-site homes.

ATSDR concluded that this site is of potential health concern because of the potential risk to human health resulting from possible exposures to hazardous substances at concentrations that may result in adverse health effects, particularly ingestion and dermal absorption of PAHs (ATSDR, 1989).

Recommendations made by ATSDR were:

1. Continue to restrict access to Kennedy Sand and Gravel until remediation of the site is complete.

2. Soil samples should be collected from all residential lots, play areas, vacant lots, and other areas with unrestricted access. These samples should be analyzed for carcinogenic and non-carcinogenic PAHs. Appropriate remediation should be implemented in those areas containing unacceptably high concentrations of contamination.

3. If fish and other biota from Wagner Creek are being consumed, it is recommended that they should be tested to determine whether or not they contain significant levels of contamination.

4. Provide adequate personal protection equipment, as required by the Occupational Safety and Health Administration (OSHA), to remedial workers who may be exposed to on-site contamination. Conduct real-time air monitoring during remedial activities to ensure that workers and nearby residents are not exposed to

unacceptable levels of chemicals released into the air during the excavation of contaminated materials.

5. Residents in areas potentially impacted by migration of contaminated groundwater use the available municipal water supply. If private wells are used as a potable water supply, the wells should be monitored for chemical contamination.

A site-specific surveillance study to determine whether residents of the Carver Terrace Subdivision were experiencing a higher incidence of health problems related to site contaminants than a similar non-exposed (control) community was recommended. This study was initiated by the Texas Department of Health in October, 1990, and the first year report was released in May, 1992.

Past Citizen Concerns

Primary health-related concerns expressed by citizens included excessive rashes, cancers, miscarriages and fire hazard.

CURRENT CONDITIONS OF THE SITE

Site Visit

Between March 29 and April 4, 1992, Texas Department of Health staff members, Dr. Jean Brender and Ms. Nancy Ingram visited the site in conjunction with the site-specific surveillance.

The fence surrounding the southern portion of the site, the former Kennedy Sand and Gravel Company, was intact. A warning sign stating "Soil Contaminated with Toxic Waste Keep Out" was posted on the fence behind the Mount Zion Baptist Church. Vegetation within the fenced gravel pit area looked stunted.

Cats and dogs were present on the residential portion of the site. All dogs were restrained on chains or within residential fences, but cats were seen roaming in the residential area as well as within the fenced area.

There was no standing water on site at the time of the site visit. Residents report that they do not fish or swim in Wagner Creek; however, they have come into contact with flood waters from Wagner Creek. During interviews, residents stated that Wagner Creek had flooded the area at least twice in the past year; the most recent flooding event occurred the first week of March.

Some of the yards had very little grass and landscaping vegetation appeared stressed. A few homes in the residential area on site were abandoned. At the same time as our site visit, residents were being contacted in regard to relocation assistance and purchase of their homes.

Contaminants of Concern

Soil samples taken by the local health department at a citizen's request in February 1989 (TDH, March 1990) showed dibenzofuran at a level higher than during prior sampling and analyses (5.6 ppm). Other chemicals detected did not exceed values reported previously in the remedial investigation. None of the values reported were above the Health Assessment Comparison (HAC) Values.

The Texas Water Commission (TWC) sampled stormwater from a Carver Terrace resident's back yard in March 1990. Results from that sample indicated that the stormwater did not contain hazardous substances (TWC, 1990).

Tables 1 and 2 contain sampling data from the Health Assessment. Previously reported concentrations for groundwater and surface soil have been compared to ATSDR's current HAC values.

CURRENT ISSUES

Public Health Concerns

Until Carver Terrace residents move from the site, they have the potential to be exposed to site contaminants through surface soils.

The impact of the site on the residential area east of the site is unclear. Residents in the area indicated that water flows from the site into their yards.

The Texas Department of Health (TDH) applied for and received a grant to conduct the site-specific surveillance project. First year results of the surveillance project showed that residents living on or near the hazardous waste site reported a higher prevalence of skin rashes than control community residents (TDH, 1992). Among women who reported having problems becoming pregnant, Koppers area women had an average of 1.3 pregnancies per woman compared to 3.4 pregnancies per woman in the control community. (TDH, 1992). The second year of the study is currently in progress.

Community Health Concerns

Concerns expressed in the past include fire, skin rashes, cancers, and negative birth outcomes. These same concerns, with the exception of fire, were expressed during the site-surveillance project.

Citizens expressed that they intentionally avoid contact with area dirt because of concern about soil contamination. Many residents purchase bottled water because they are concerned about drinking contaminated water. Homes in the area, however, are on the Texarkana municipal water system that obtains its water supply from Lake Wright Patman and is unaffected by this site.

Citizens living in the residential area east of the site expressed concern that contaminants from the site were being transported off the site to their property during flood events.

CONCLUSIONS

In the public health assessment of April 10, 1989, the main concern was the potential indirect ingestion and dermal absorption of PAHs in surface soils. Future consumption of groundwater was cited as another exposure pathway of potential concern. Although some yards were sodded, the site is still a potential health risk for frequent, long-term contact with carcinogenic PAHS. Because residents are to be relocated off the site, their exposure to contaminated surface soils and sediments will be eliminated. Since the groundwater is to be remediated, this potential source of exposure will be eliminated.

Surface soil and sediment could be flowing to the residential area east of the site during flood events. Normally, water flow is in a southerly direction along the unnamed tributary and Wagner Creek, and easterly then southerly along the drainage ditch that cuts across the middle of the site. Residents have noted that flood waters flow east along West Third Street then south along Elliot Street. Additional data from this area may be warranted.

The impact of remediation on the residential areas east and north of the site must be considered.

Information gathered during the site-specific surveillance study indicated that residents of Carver Terrace do not consume fish from Wagner Creek; therefore, testing of the fish is not indicated at this time.

RECOMMENDATIONS

Recommendations from previous health assessment that are still valid:

1. Restrict access to Kennedy Sand and Gravel until site remediation is complete.

2. Provide adequate personal protection equipment, as required by the Occupational Safety and Health Administration (OSHA), to remediation workers who may be exposed to on-site contamination. Conduct real-time air monitoring during remedial activities to ensure that workers and nearby residents are not exposed to unacceptable levels of chemicals released into the air during the excavation of contaminated materials.

3. Monitor private off-site wells in areas that may potentially be impacted by migration of contaminated groundwater.

New Recommendations:

1. EPA will perform limited surface soil sampling (0-3 inches) in some of the yards that are adjacent to the site on the east side, to confirm site-related chemicals have not been transported off-site via heavy rainfall.

2. The Texas Department of Health will complete the site-specific surveillance project.

3. EPA will keep ATSDR appraised of any additional data that is generated during the pilot studies and remedial action. If any additional data suggest human exposure to hazardous substances is occurring, ATSDR and TDH will reevaluate this site for appropriate follow-up.

Health Activities Recommendations Panel Recommendations:

The data and information used in developing this site review and update have been evaluated to determine if follow-up actions may be indicated. Further site evaluation is needed. This evaluation should consist of the ongoing site-specific surveillance study and the previously mentioned recommendations.

DOCUMENTS REVIEWED

1. Agency for Toxic Substances and Disease Registry (ATSDR) Health Assessment for Koppers Company, Inc, National Priorities List (NPL) Site, Texarkana, Texas. April 1989.

2. Texas Department of Health First Year Report, Site-Specific Surveillance Project at the Koppers Company,Inc., National Priorities List Site. May 1992.

3. ERT, Final Remedial Investigation Report, Koppers Texarkana Site, Texarkana, Texas, Volume 1. Prepared for Koppers Company, Inc., Pittsburg, PA. April 1988.

4. Environmental Protection Agency Koppers Site Update. An Environmental Protection Agency Update on Activities at the Koppers Superfund Site, Texarkana, Texas. March 5, 1992.

5. Environmental Protection Agency Responsiveness Summary Update. Koppers Texarkana Superfund Site, Texarkana, Texas. April 22, 1992.

6. Texas Department of Health, Record of Telephone Call, March 15, 1990.

7. Texas Water Commission letter, May 5, 1990.

Appendices

Appendix 1 - Table 1 Koppers On-Site Contaminants of Concern
Table 2 Koppers Off-Site Contaminants of Concern

Table 1

Koppers On-site Contaminants of Concern

Contaminant	Groundwater Maximum (µg/L)	Groundwater HAC Value (µg/L)	Surface Soil Maximum (mg/kg)	Surface Soil HAC Value (mg/kg)
Acenaphthene	1,500,000	600[2]	290	3,000[2]
Acenaphthylene	1,000	NH	200	NH
Anthracene	12,000	3,000[2]	170	15,000[2]
Arsenic	21	0.006[1]	0.600	0.029[1]
Benzene	950	1.2[3]	NA	24[1]
Benzo(a)anthracene	6,100	0.1[3]	300	NH
Benzo(b)fluoranthene	3,700	0.2[3]	92	NH
Benzo(g,h,i)perylene	ND	NA	120	NH
Benzo(a)pyrene	1,900	0.006[1]	420	0.12[1]
Cadmium	480	7.0[2]	3	10[2]
Chlorinated Dibenzodioxins				
hexa	NA	NH	.004	0.00005[2*]
hepta	NA	NH	.065	NH
octa	NA	NH	.2	NH
Chlorinated Dibenzofurans				
penta	NA	NH	.0003	NH
hexa	NA	NH	.01	NH
hepta	NA	NH	.112	NH
octa	NA	NH	.114	NH
Chrysene	3,700	NH	7	NH
Dibenzo(a,h)anthracene	ND	NH	3.7	NH
Dibenzofuran	970,000	NH	1.4	NH
2,4-Dimethylphenol	1,200	200[2]	ND	1,000[2]
Ethylbenzene	2,100	1,000[2]	NA	5,000[2]
Fluoranthene	1,500	400[2]	140	2,000[2]
Fluorene	1,200,000	400[2]	220	2,000[2]
Indeno(1,2,3-cd)pyrene	ND	0.4[3]	240	NH
2-Methylnaphthalene	1,100,000	NH	14	NH
Napthalene	5,500,000	20[4]	240,000	NH
Pentachlorophenol	2,200	0.29[1]	28	5.8[1]
Phenanthrene	5,500,000	NH	330	NH
Phenol	360	2,500[2]	ND	12,000[2]
Pyrene	1,300,000	300[2]	1,300	1,500[2]
Styrene	66	20,000[2]	NA	100,000[2]
Toluene	2,200	NH	NA	NH
Total Xylenes	3,500	20,000[2]	NA	100,000[2]

ND = Not Detected
NA = Not Analyzed
NH = No HAC Value
µg/L = parts per million
mg/kg = parts per billion

1 = Carcinogenic Risk Evaluation Guide
2 = Noncarcinogenic Risk Evaluation Guide
3 = Maximum Contaminant Level
4 = Lifetime Health Advisory
* = HAC Value for TCDD

Note: Adapted from Health Assessment for Koppers Company National Priorities List Site, April 1989

Table 2

Koppers Off-Site Contamination

Contaminants	Groundwater Maximum (µg/L)	Groundwater HAC Value (µg/L)	Sediment Maximum (mg/kg)	Sediment HAC Value (mg/kg)
Acenapthene	30	600[2]	19.0	3,000[2]
Anthracene	ND	3,000[2]	10.0	15,000[2]
Arsenic	47	0.006[1]	NA	0.029[1]
Benzo(a)anthracene	ND	0.1[3]	1.1	NH
Benzo(b)fluoranthene	ND	0.2[3]	7.9	NH
Cadmium	63	7.0[2]	NA	10[2]
Chrysene	ND	NH	17.0	NH
Dibenzofuran	17	NH	ND	NH
Fluoranthene	ND	400[2]	5.7	2,000[2]
Fluorene	35	400[2]	15.0	2,000[2]
2-Methylnaphthalene	ND	NH	27.0	NH
Naphthalene	ND	20[4]	67.0	NH
Nickel	3,400	NH	NA	100[3]
Phenanthrene	ND	NH	32	NH
Pyrene	ND	300[2]	4.9	1,500[2]

ND = Not Detected
NA = Not Anlayzed
NH = No HAC Value
µg/L = parts per million
mg/kg = parts per billion

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4 = Lifetime Health Advisory

Note: Adapted from Health Assessment for Koppers Company National Priorities List Site, April 1989